

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): ~~[[Radio]]~~ A radio communication system comprising~~[[;]]~~
a plurality of radio stations,

wherein each said radio station ~~managing~~ manages at least one radio channel for packet radio
communication,

wherein each said radio station ~~communicating~~ communicates with another radio station
either directly or through at least one other radio station,

wherein each said radio station ~~communicating~~ communicates with an adjacent radio station
in one of centralized control access phase and distributed control access phase for each radio
channel,

whereby in the centralized control access phase, each radio station ~~operating~~ operates
adaptively either as a master station which controls transmission right and transmits a signal
according to control of the own radio station or as a slave station which transmits a signal under
control of a master station, for each channel, ~~[[and]]~~

wherein said centralized control access phase and said distributed control access phase
~~[[being]]~~ are switched on time divisional basis for each radio station and for each radio channel,

wherein when a radio station operates in a radio channel as a master station, said radio station transmits a beacon packet including an address of said master station, an address of all the slave stations belonging to said master station and time until each slave station should transmit a request packet to said master station response to said beacon packet, for indicating beginning of a centralized control access phase, and each slave station, upon receipt of said beacon packet, transmits said request packet to said master station at a time instructed by said beacon packet, and

wherein a pair of radio stations operating under relation of a master station and a slave station finish the centralized control access phase and switch to the distributed control access phase, said master station transmits a contention free end packet indicating an end of the centralized control access phase, said contention free end packet includes an end time of said centralized control access phase, a time until a next beacon packet is transmitted, and an instruction whether or not a slave station receiving said contention free end packet should relay said contention free end packet to another slave station, and a slave station which receives said contention free end packet transmits the other contention free end packet to said master station at a time indicated by said contention free end packet sent by the master station, so that the centralized control access phase switches to the distributed control access phase.

Claim 2 (currently amended): [[Radio]] The radio communication system according to claim 1, wherein when a radio station A₁ transmits a signal to another radio station A_n through radio

stations $A_2, A_3, \dots, A_k, A_{k+1}, \dots, A_{n-1}$ (k is an integer larger than 2 and equal to or smaller than $n-1$), a radio station A_k communicates with a radio station A_{k+1} through a radio channel between stations A_k and A_{k+1} having a relation of a master station and a slave station, or a radio channel between slave stations A_k and A_{k+1} controlled by a common master station.

Claims 3-4 (canceled).

Claim 5 (currently amended): ~~[[Radio]]~~ The radio communication system according to claim 1, wherein each radio station performs carrier sense for a predetermined time for each channel, when said radio station receives a beacon packet from a master station in a specific radio channel, said radio station operates as a slave station belonging to said master station in said radio channel,

when said radio station does not receive a beacon packet from a master station but receives a request packet from a slave station in a specific radio channel, said radio station operates as a silent station which is prohibited ~~to transmit~~ from transmitting a signal ~~during when~~ said master station operates in the centralized control access phase in said radio channel, and afterwards when said radio station receives a contention free end packet from a master station or a slave station, said radio station operates in the distributed control access phase until a time of next beacon packet indicated in said contention free end packet, and

when said radio station receives no beacon packet from a master station and no request packet, said radio station operates as a master station in said channel in the centralized control access phase.

Claim 6 (currently amended): ~~[[Radio]]~~ The radio communication system according to claim 5, wherein when a first radio station receives no beacon packet from a master station, and no request packet,

said radio station selects a second radio station which is connected to said radio station in another specific radio channel,

said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station, or said second radio station operates as a master station and said first radio station operates as a slave station belonging to said master station.

Claim 7 (currently amended): A radio station apparatus in a radio network comprising a plurality of radio stations, ~~comprising;~~ wherein

each radio station apparatus ~~having~~ has at least a radio channel for radio communication, and

wherein each radio station apparatus [[being]] is able to operate adaptively as one of a master station having transmission control right in centralized control access phase, a slave station controlled by a master station, a silent station, and a distributed control access phase,

wherein said centralized control access phase and said distributed control phase are switched on a time divisional basis for each radio channel,

wherein when a radio station operates in a radio channel as a master station, said radio station transmits a beacon packet including an address of said master station, an address of all the slave stations belonging to said master station and time until each slave station should transmit a request packet to said master station responsive to said beacon packet, for indicating beginning of a centralized control access phase, and each slave station, upon receipt of said beacon packet, transmits said request packet to said master station at a time instructed by said beacon packet,
and

wherein when said radio station apparatus operates with another radio station apparatus as a pair of radio stations operating under relation of a master station and a slave station finish the centralized control access phase and switch to the distributed control access phase, said master station transmits a contention free end packet indicating an end of the centralized control access phase, said contention free end packet includes an end time of said centralized control access phase, a time until a next beacon packet is transmitted, and an instruction whether or not a slave station receiving said contention free end packet should relay said contention free end packet to another slave station, and a slave station which receives said contention free end packet transmits

the other contention free end packet to said master station at a time indicated by said contention free end packet sent by the master station, so that the centralized control access phase switches to the distributed control access phase.

Claim 8 (currently amended): A method for radio communication in a plurality of radio stations, each radio station having at least one radio channel for packet radio communication, each radio station communicating with another radio station either directly or through at least one other radio station, each radio station communicating with an adjacent radio station in one of a centralized control access phase and a distributed control access phase for each radio channel, in case of the centralized control access phase, each radio station operating adaptively either as a master station which controls transmission right and transmits a signal according to control of the own radio station or as a slave station which transmits a signal under control of a master station, for each channel, and said centralized control access phase and said distributed control access phase being switched on a time divisional basis for each radio station and for each radio channel,

wherein when a radio station operates in a radio channel as a master station, said radio station transmits a beacon packet including an address of said master station, an address of all the slave stations belonging to said master station and a time until each slave station should transmit a request packet to said master station responsive to said beacon packet, for indicating beginning of the centralized control access phase, and each slave station, upon receipt of said beacon

packet, transmits said request packet to said master station at a time instructed by said beacon packet, and

wherein a pair of radio stations operating under relation of a master station and a slave station finish the centralized control access phase and switch to the distributed control access phase, said master station transmits a contention free end packet indicating end of the centralized control access phase, said contention free end packet includes end time of said centralized control access phase, time until next beacon packet is transmitted, and an instruction as to whether or not a slave station receiving said contention free end packet should relay said contention free end packet to another slave station, and a slave station which receives said contention free end packet transmits the other contention free end packet to said master station at a time indicated by said contention free end packet sent by the master station, so that the centralized control access phase switches to the distributed control access phase.

Claim 9 (currently amended): [[A]] The method for radio communication according to claim 8, wherein when a radio station A_1 transmits a signal to another radio station A_n through radio stations $A_2, A_3, \dots, A_k, A_{k+1}, \dots, A_{n-1}$ (k is an integer larger than 2 and equal to or smaller than $n-1$), a radio station A_k communicates with a radio station A_{k+1} through a radio channel between stations A_k and A_{k+1} having relation of a master station and a slave station, or a radio channel between slave stations A_k and A_{k+1} controlled by a common master station.

Claims 10-11 (canceled).

Claim 12 (currently amended): [[A]] The method for radio communication according to claim 8, wherein each radio station performs carrier sense for a predetermined time for each channel, when said radio station receives a beacon packet from a master station in a specific radio channel, said radio station operates as a slave station belonging to said master station in said radio channel,

when said radio station does not receive a beacon packet from a master station but receives a request packet from a slave station in a specific radio channel, said radio station operates as a silent station which is prohibited to ~~transmit~~ from transmitting a signal ~~during when~~ said master station operates in the centralized control access phase in said radio channel, and afterwards when said radio station receives a contention free end packet from a master station or a slave station, said radio station operates in the distributed control access phase until a time of next beacon packet indicated in said contention free end packet, and

when said radio station receives no beacon packet from a master station and no request packet, said radio station operates as a master station in said channel in centralized control access phase.

Claim 13 (currently amended): [[A]] The method for radio communication according to claim 12, wherein when a first radio station receives no beacon packet from a master station, and no request packet,

said radio station selects second radio station which is connected to said radio station in another specific radio channel,

said first radio station operates as a master station in said specific radio channel and said second radio station operates as a slave station belonging to said master station, or said second radio station operates as a master station and said first radio station operates as a slave station belonging to said master station.